Development of the Water Resources Management Model
In Sistan Area

Abstract

Sistan region has specific importance because of complete dependence on the Helmand border River and international Hamoun wetland which have been recorded in Ramsar Convention. Helmand River water fluctuation in past years and competition between domestic, agricultural and environmental user's intricate water management in this region. To help decision makers in this situation, the first aim was complete realization of water resources system of region and its changing after the first version. The second purpose was making decision support system for better management. Since the actual river flow data are often low and they correlate and depend yearly and monthly, making the data similar to historical data is first step of water resources planning and managing in a region. Therefore, using 50 year data and different methods Helmad River data simulated and Copula model was selected for Sistan and Paryan River flow modeling. Then second version of decision support system of water resources management in Sistan was made and it is used for scenario analysis. Then, Decision support system of Chahnimeh reservoir made by stochastic dynamic programming and optimal water release for agricultural sector was determined. The results showed policies like water transmition with pipe, making irrigation network and dredging have positive effect on increasing water resources and decreasing water shortages in agriculture, drinking water and the environment sectors. However, the 4th Chahnimeh increase evaporation and decrease water supply. Although increasing domestic and agricultural supply without efficiency growth decreases the environmental flows.